

COUNTY BOROUGH OF HALIFAX.

REPORT OF THE MEDICAL OFFICER OF HEALTH, JAS. T. NEECH, M.D., D.P.H. FOR THE YEAR 1918.



INTRODUCTION.

To the Chairman and Members of the Health Committee.

GENTLEMEN,

I have pleasure in submitting to you the 46th Annual Report of the Medical Officer of Health for the Borough.

I regret that I have again to report a further slight fall in the birthrate, and a considerable increase in the deathrate, owing chiefly to the epidemic of influenza. Formerly I was able to yearly record a considerable natural increase in the population of the Borough, but during last year the number of deaths exceeded the births by 530.

There was also an increase in the zymotic deathrate, due chiefly to the epidemic of measles.

Owing to the War, no progress for the conversion of goux closets to the water carriage system has been possible, as soon as conditions become more normal, attention should be directed to this matter, so as to obviate the necessity of carting so much nightsoil through the streets.

All nightsoil should also be removed from the Dépôt by boat, so as to avoid the necessity of again carting it through the streets to railway trucks. This is a serious nuisance.

In conclusion I desire to acknowledge the loyal co-operation of all the members of the staff of my department, and thank your Committee for its continuous support.

I am,

Gentlemen,

Your obedient servant,

Jas. T. Neech M.D. D.P.H.

Medical Officer of Health.

PUBLIC HEALTH DEPARTMENT,
TOWN HALL,
HALIFAX,
JUNE 30TH., 1919.

REPORT.

Area of the Borough...	...	...	13,984 acres.
Registrar's estimate of Civil Population...			93,528
do.	Total	do.	104,795

Upon the latter figure, the birthrate is calculated, and the deathrate upon the former.

The total number of births registered was 1,319, corrected for births not belonging to the Borough. This gives a birthrate of 12.5 per 1,000, the lowest on record.

There were 105 illegitimate births registered, against 85 during the previous year.

The number of deaths belonging to the Borough was 1,849, giving a deathrate of 19.7 per 1,000, the highest deathrate since the year 1891. This increased deathrate is chiefly due to the increased number of deaths from Influenza and Broncho-Pneumonia.

The principal zymotic diseases caused 109 deaths, against 58 during the previous year, which gives a deathrate of 1.16, nearly double that for 1917. This is largely accounted for owing to an increase of 36 in the number of deaths from measles, compared with the previous year.

There occurred 162 deaths of infants under one year of age, against 159 during the previous year, which gives an infant mortality of 122 deaths per 1,000 births, which is the highest infantile deathrate recorded since the year 1911.

This increase was chiefly due to an increased number of deaths from measles, whooping cough, diarrhoea and enteritis, influenza, and broncho-pneumonia.

It is interesting to note, however, that there were only 3 deaths registered from syphilis, against 11 during the previous year.

Owing to an epidemic of measles, which had commenced during the previous year, and which extended more or less over the first six months of the year under review, the total number of infectious diseases reported was 1,829, of which 1,573 were measles, against a total of 816 during the previous year.

In consequence of this epidemic, an extra Health Visitor was appointed early in February, and a large number of handbills giving advice to parents, were distributed.

Several notifications of persons belonging to the Borough, who had been in contact with smallpox, were received, but no case occurred during the year.

There were 60 cases of scarlet fever notified, against 57 during the previous year, but no death from this disease occurred. This is the third complete year which has passed without a death from this disease, which constitutes a record in the statistics of the Borough.

There were 10 cases of enteric fever notified, against 12 during the previous year. There were 4 deaths from this disease, which gives a deathrate of .042, and a case mortality of 40%

There was an increase in the number of cases of diphtheria, there having been 143 cases notified, against 56 during the previous year. Of these, 20 died, giving a deathrate of .21, and a case mortality of 13%.

There were 22 cases of erysipelas reported, but no death occurred.

There were 1,565 cases of measles reported, and 8 of german measles.

Measles caused 48 deaths, against 12 during the previous year, giving a deathrate of .51 per 1,000.

Whooping Cough was also more prevalent, and caused 21 deaths, against 6 during the previous year, a deathrate of .22 per 1,000.

There were 16 deaths from diarrhoea and enteritis under two years of age, against 22 during the previous year, giving a deathrate of .17 per 1,000.

Influenza caused 255 deaths, against 3 during the previous year, which is equal to a deathrate of 2.7 per 1,000.

From respiratory diseases there resulted 358 deaths, giving a deathrate of 3.82 per 1,000, against 2.93 for the previous year.

There was also an increase in the number of deaths from phthisis, viz. :—128, against 92 during the previous year. This gives a deathrate of 1.36 per 1,000.

From other forms of tubercular disease 30 deaths occurred. Thus the total number of deaths from the various forms of tuberculosis was 158, giving a deathrate of 1.68 per 1,000.

The causes of death from tubercular disease other than phthisis were as follows :—

Tubercular Meningitis	...	...	9
Tuberculous Peritonitis			
Tabes Mesenterica	...	...	8
Other Tubercular Diseases	...	...	13

The number of notifications of tuberculosis was 194 which included 29 duplicate reports, consequently the total number of primary cases notified was 165 for the year.

Of these, 127 were pulmonary, and 38 non-pulmonary cases.

Dr. Taylor has furnished me with the following particulars regarding the work done at the Dispensary and Sanatorium.

The number of visits paid by the Tuberculosis Nurse was as follows :—

	Insured	Non-Insured	Total
Notified persons visited ...	47	40	87
Repeat visits to Notifications	576	93	669
	623	133	756

There were 195 fresh cases examined at the Dispensary, of which 151 were insured and 44 non-insured persons.

The total number of attendances at the Dispensary for examination and treatment was 1,962, the attendances of insured persons numbering 1,452, and non-insured 510.

The number of pathological specimens examined in the laboratory at the Dispensary was 692, which included 455 of sputa, of which 103 were found to be positive, and 352 negative.

From January 1st to December 31st, 1918, 165 cases were admitted to the Halifax Sanatorium, Shelf, of which 143 were insured, and 22 non-insured persons.

The total number discharged during that period was 193, of which 190 were pulmonary, and 3 non-pulmonary cases.

The number of deaths in the Institution during the year, was 8.

From the various forms of malignant disease, 123 deaths were registered, giving a deathrate of 1.3 per 1,000.

The Coroner held 121 inquests, which included 15 on persons not belonging to the Borough, and there were 6 inquests held outside the Borough, on persons belonging thereto.

From the various military depots, 21 reports were received in respect of men sent home on furlough, who had recovered from attacks of dysentery, enteric fever, and malaria. These cases were visited and kept under observation during their stay in the Borough.

There are 10 Common Lodging Houses in the Borough, the same number as in the previous year, and they are registered for the accommodation of 698 lodgers. There has been no cause for complaint in the way they have been conducted during the year.

The following table shows the number of visits paid to the factories and workshops by the District Inspectors during the year :—

District	Number of Visits made to Factories	Number of Visits made to Workshops
B	46	172
C	53	131
D	51	33
Total ...	150	336

There were 85 nuisances and sanitary defects dealt with, against 105 during the previous year.

The number of sanitary defects which remained unabated at the end of the previous year was 110, which together with the above referred to, make a total of 195, of which 106 were remedied, and 89 remained unabated at the end of the year.

The difficulties experienced in securing the remedy of defects, referred to in my last report, were experienced during the year under review.

The Factory Inspectors sent 15 notices of sanitary defects during the year. Attention was given to these, and after they were remedied, notice thereof was sent to the Factory Inspectors, the number of such notices being 20.

The number of defects reported by the Factory Inspectors which remained unabated at the end of the year was 9.

The lists of outworkers received during the year numbered 2, and the number of outworkers reported as being employed was as follows :—

	Tailors	Shoe- makers	Total
No. of Outworkers	2	1	3

The Sanitary Inspectors paid 28 visits to the outworkers.

The number of underground bakehouses is now 25, a decrease of one during the year.

To the bakehouses 112 visits were paid during the year, and the following table gives the number and character of the defects reported, and the number remedied :—

Nature of Defects.				Number Reported	Number Remedied.
Bakehouses requiring limewashing	...			14	14
Defective drain	...	...	...	4	4
Dirty floors	...	...	...	4	4
Total				22	22

Only one visit was paid to Ice Cream makers during the year, this having resulted from the fact that the manufacture of ice cream was practically non-existent during the year.

The number of offensive trades carried on in the Borough was as follows :—

Bone Boilers	...	3
Blood Boilers	...	1
Soap Boilers	...	2
Tripe Boilers	...	10

Total 16

These premises have been kept under supervision, and no complaints were received regarding them during the year.

There were 692 specimens examined in the Public Health Laboratory, against 397 during the previous year.

The following table gives details regarding the specimens examined :—

Disease.	No. of Specimens.	Positive	Negative.
Tuberculosis (Sputum)...	455	103	352
Do. (Urine) ...	7	1	6
Diphtheria (Swabs) ...	170	48	122
Typhoid) (Widals) ...	4	...	4
Blood ...	8	...	...
Other Examinations ...	48	...	...
Total	692	152	484

The number of Dairies, Cowsheds, and Milkshops on the register was as follows :—

Cowsheds	...	...	...	...	502
Milkshops	...	...	...	...	39
Dairy Farmers and Purveyors of Milk	...				346

The Inspectors responsible for the supervision of the above paid 658 visits during the year, and the District Sanitary Inspectors paid 77 visits to the registered milkshops.

It is estimated there were over 3,000 milch cows kept in the Borough during the year.

There are 6 private slaughterhouses in the Borough. They have been visited, but have not been used during the year under review.

The following table shows the number of visits paid by the Meat Inspector to the slaughterhouses, butchers' shops markets, etc. :—

Description of Premises	Number of Visits
Public Slaughterhouses	1365
Private Slaughterhouses	186
Borough Market	1534
Wholesale Market	1435
Fasting Sheds... ..	1352
Potted Meat Houses	137
Tripe Boiling Houses	197
Butchers' Shops	1421
Cowsheds	235
Other Visits	736
Total	8,598

The following table shows the number of animals slaughtered during the year :—

PUBLIC SLAUGHTERHOUSES.						
Mules	Horses.	Cattle	Calves	Sheep & Lambs	Pigs	Total.
15	331	5405	4311	23783	1480	35325

PRIVATE SLAUGHTERHOUSES. (Approximate)
A few Bacon Pigs only.

There were 331 horses and 15 mules slaughtered in the Public Abbatoir during the year, for human food, but the majority of these were afterwards disposed of outside the Borough.

There were 110 separate seizures of meat and offal, and the following table shows the number of carcasses condemned, and the total weight of the same :—

	Mules	Horses.	Cattle,	Calves.	Sheep and Lambs.	Pigs.	Total.
Number of Animals killed	15	331	5405	4311	23783	1480	35325
Do. condemned	...	...	18	4	6	4	32
Weight of those } condemned in lbs }	...	1300	4937	156	302	243	6938

In addition to the above there were 71 seizures of fish, fruit, etc., and the following table shows the weight of the various kinds of food destroyed as unfit for human consumption :—

Kinds of Food Destroyed	Quantity in lbs.
5 Quarters of Horse Flesh ...	1300
18 Carcases of Beef ...	4937
4 Carcases of Veal ...	156
6 Carcases of Mutton ...	302
4 Carcases of Pork ...	243
Hams ...	320
49 Rabbits ...	55
Fish ...	2278
Fruit ...	80
Other Foods ...	4508
Offal ...	1759
Total ...	15938

All the above was voluntarily surrendered, and in no case was it necessary to obtain a Justices' Order.

The steam disinfecter is situated at the Borough Fever Hospital, and 7,205 articles of bedding, clothing, etc., were disinfected during the year.

There were 515 rooms in private houses and 127 rooms in schools fumigated, and 166 books disinfected.

There were 200 gallons of disinfecting fluid distributed free in connection with cases of infectious disease.

There were 124 visits of inspection paid to furnished rooms and houses let in lodgings, of which 13 were found to be in a dirty condition. In connection with these also, 8 closets were found to be dirty, and one dilapidated, and in one furnished room, the wall plaster was defective. These defects were remedied.

The rent of furnished rooms is increasing, and it may be necessary in the near future to make new Bye-laws, because if the rents are raised very much further, it will put these rooms outside the operation of our Bye-laws, which would be a bad thing, in view of the present tendency to overcrowding.

Owing to the shortage of staff it has not been possible to carry out any house to house inspection during the year.

Mr. Green has submitted the following table, which is a general summary of his observations at the meteorological station at Belle Vue.

It will be observed that rain fell on 182 days during the year, and the amount collected was 39.59in. against 33.03in. during the previous year.

On January 1st, 1918, there remained in the Borough Fever Hospital, 10 cases of scarlet fever, 5 of diphtheria, and 1 of cerebro-spinal fever. During the year a total of 140 cases, including 10 from outside districts were admitted.

The following table shows the number of cases admitted of each disease, and the mortality from the same :—

Disease			Number Admitted	Deaths	Case Mortality per cent.
Diphtheria	...	...	92	14	15.2
Scarlet Fever	...	...	39	...	...
Enteric Fever	...	...	9	1	11.1
Other Causes	...	...	...	2	...
Total			140	17	12.1

Two cases of diphtheria died within 24 hours of admission, and one in the ambulance on the way to the hospital.

There were 1,173 births notified, and the number registered was 1,319, so that 88.9% were reported against 88% during the previous year.

There were 30 notifications of stillbirths.

The staff of Lady Health Visitors was increased on April 10th, 1918, by the appointment of Nurse Marshall as Assistant Health Visitor.

The Senior Lady Health Visitor paid 1,538 visits to notified births, and 67 to Guild cases and others.

The Assistant Lady Health Visitors paid 3,410 visits, and the voluntary visitors 500 visits, so that the total number of visits paid by the official and voluntary visitors during the year was 5,515.

No visits were paid by the voluntary visitors during the epidemic of Influenza, consequently the total number of visits was only about half the number paid by them during the previous year.

Of the births notified, 558 were attended by medical men, and 615 by midwives.

Of the 798 infants visited, 691 were breast fed at birth, 15 breast and bottle fed, and 92 bottle fed only.

The clinics held at the Maternity and Child Welfare Centre, were attended by 347 mothers during the year, and the total number of visits paid to the clinic by these mothers during that period was 2,635.

There are now 19 midwives on the local Roll, an increase of 6 during the year.

The Senior Lady Health Visitor, who is the acting Midwifery Superintendent, paid 57 visits to the midwives, and the following particulars relative to their case books, etc., were obtained :—

Number on Register	Case Books		
	Well kept	Fairly well kept	Not Up-to-date
19	11	2	1

The 6 midwives at the Maternity Home use the same Register.

There were 30 notices received during the year of sending for medical aid.

Mr. Green has supplied me with a general summary of his observations as follows:—

General Summary of Meteorological Observations taken at the Public Library, Belle Vue, from January 1st, 1918, to December 31st, 1918.

By E. GREEN, LIBRARIAN.

LATITUDE OF STATION = 53° 43' N.

LONGITUDE = 1° 52' W.

HEIGHT ABOVE SEA LEVEL = 626 FEET.

1918.	Pressure of Atmosphere in Month.		Temperature of Air in Month.						Mean Temperature.		Vapour.			Mean degree of Humidity, Saturation=100.	Mean Weight of a cubic foot of Air.	Mean Reading of Thermometer.		Wind.										Mean amount of Cloud.	Rain.		REMARKS
Month.	Mean at 32° F. and Sea Level.	Range.	Highest.	Lowest.	Range.	Mean.			Adopted.)	Dew Points.	Elastic Force.	In a cubic foot of Air.				Maximum in Rays of Sun.	Minimum on Grass.	Estimated Strength.	Relative proportion of										No. of Days it fell.	Amount Collected.	
						Of all Highest.	Of all Lowest.	Daily Range.				Mean.	Short of Saturation.						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.				
	in.	in.	o	o	o	o	o	o	o	o	in.	gr.	gr.		gr.	o	o												in.		
January ...	29·893	1·230	52·1	11·6	40·5	42·2	31·7	10·5	37·4	33·0	·189	2·2	0·5	72	540·0	54·6	26·9	1·3	2	1	0	2	4	14	7	15	3	7·8	18	2·85	The observations have been reduced to mean values by Glaisher's Barometrical & Diurnal Range Tables, and the Hygrometrical results have been deduced from the seventh edition of Hygrometrical Tables, after corrections for Index errors of the Instruments employed.
February ...	30·057	2·226	51·5	25·5	26·0	45·9	36·8	9·1	42·0	37·5	·215	2·5	0·7	78	535·0	62·0	36·0	2·1	0	3	0	3	4	13	4	8	10	8·4	17	5·20	
March ...	30·059	1·132	60·1	26·6	33·5	46·2	35·1	11·1	41·6	35·2	·202	2·4	0·8	74	535·0	70·9	33·0	1·6	6	9	10	0	0	11	5	4	1	6·7	12	1·40	
April ...	29·951	1·004	63·8	30·5	33·3	50·0	37·1	13·9	42·3	36·4	·214	2·5	0·9	72	532·0	82·6	34·9	2·4	8	24	4	0	0	2	1	4	3	7·3	10	0·77	
May ...	30·010	1·014	79·2	34·5	44·7	62·2	45·4	16·9	55·5	45·5	·304	3·4	1·8	65	519·0	100·1	41·9	1·6	2	10	2	4	4	5	5	10	5	6·4	10	2·93	
June ...	30·023	0·836	76·8	39·5	37·3	61·4	46·5	15·0	55·4	44·6	·291	3·3	2·0	61	519·0	102·3	42·5	2·2	7	4	1	1	1	3	6	18	5	7·0	12	1·15	
July ...	29·860	0·978	74·1	40·7	33·4	64·3	50·1	15·3	59·0	49·1	·349	3·8	2·0	66	516·0	102·6	46·9	1·7	3	3	2	0	3	17	5	8	8	7·5	15	3·94	
August ...	29·947	0·726	76·5	44·9	31·6	66·1	52·2	14·0	59·9	51·8	·389	4·3	1·6	75	515·0	105·4	50·2	1·9	2	3	1	1	1	3	17	12	6	7·2	13	1·83	
September ...	29·716	0·998	70·2	39·3	30·9	57·1	45·8	11·4	52·2	46·0	·310	3·5	1·0	74	523·0	95·0	44·1	1·7	3	2	1	1	3	11	17	5	3	7·4	28	9·87	
October ...	29·966	0·772	60·3	32·5	27·8	52·2	42·5	9·7	48·4	42·8	·276	3·1	0·9	76	527·0	79·7	40·0	1·6	4	5	0	1	2	16	6	9	6	4·2	15	2·21	
November ...	30·052	1·324	56·4	27·9	28·5	44·2	35·2	9·0	40·7	37·5	·225	2·6	0·5	81	535·0	57·6	32·7	1·4	1	3	1	3	1	10	5	6	18	8·4	11	1·57	
December ...	29·731	1·128	55·9	28·3	27·6	47·5	38·7	8·8	43·3	39·6	·250	2·9	0·4	86	534·0	60·3	35·4	2·1	0	2	0	1	2	12	13	13	2	8·7	21	5·87	
Annual Means	29·940	1·114	64·7	31·8	53·0	53·2	41·4	12·0	41·5	41·5	·267	3·0	1·0	73	527·0	81·0	38·7	1·8	3	5	2	1	2	9	7	9	6	7·2			

The Mean Monthly Readings of the Earth Thermometer, four feet below the surface, were as follows:—

January, 40°

March, 41°

May, 47°

July, 53°

September, 53°

November, 46°

February, 42°

April, 43°

June, 51°

August, 55°

October, 49°

December, 44°

Highest Readings = 56° on August 23rd to August 30th.

Lowest Readings = 40° on January 9th to January 26th.

Rain fell on 182 days, and measured 39·59 inches

The following is a list of midwives registered at the Health Office during the year :—

Name	Address
Ogden Emma ...	42, Burnley Road, Halifax
Taylor Maria ...	6, Lane End, Hipperholme
Connew Sarah ...	23, Clay Street, Halifax
Shelley Emelina ...	6, Ellen Royd, Halifax
Wilson Elizabeth Ann ...	1, Shoemith's Buildings, Hx.
Sutcliffe Ellen ...	6, Spindle Street, Halifax
Lake Lucy ...	14, Bolton Street, Halifax
Hoyle Elizabeth ...	St. Anne's Road, Halifax
Dakin Elizabeth ...	13, Church Hill, Luddenden, Hx.
Woodhead Fanny ...	40, Chestnut Street, Halifax
Blakey Louisa ...	33, Commercial Road, Halifax
Carter Annie ...	Mat'ty Home, 27 Clare Rd., Hx.
Shutt Lottie ...	Do. 21, Do
Addison Eleanor ...	Do. 27, Do.
Laycock Dora W. ...	Do. 27, Do.
Hill Charlotte Ada ...	Do. 27, Do.
Reynolds Clara A. ...	Do. 21, Do.
Radcliffe Minnie ...	38, Taylor Street, Halifax
Wade Peœbe ...	66, St. Peter Street, Halifax

The samples taken were seriously fewer in number than for many years past. This was due to temporary causes, somewhat unavoidable. Increased activity under the Food and Drugs Acts is to be expected through the influence of the new Ministry of Health, which has been instituted on the painful discovery that our population is largely of C3 quality. One of the smaller contributing causes is doubtless the preserved character of much of the food we eat. A wider range of standards is likely to be set up governing "preservative" limits, fibre, husk, mineral matter, and added matters generally in foods and their adjuncts.

At the same time, the "Order" relating to milk needs alteration, so that when this article is found below the standard quality, a fine is automatically imposed, rising sharply in amount with the percentage of deficiency and the frequency of occurrence. At present a man may buy poor cattle, feed them badly, and then escape the consequences of selling weak milk, by shifting the blame on to the unfortunate animals. The public is entitled to have supplied to it normal, not abnormal milk. The practice of watering milk is so profitable, that fines, as usually imposed, are insufficient to stop a thoroughly unprincipled and determined man, the truth of which has been well illustrated by a recent case.

The following table shows the nature of the articles dealt with, and the results of the analyses :—

Article	Total	Genuine	Adulterated	Doubtful	Percentage adulterated or unsatisfactory.
Milk	94	83	7	4	11·7
Butter	16	16	0	0	0·0
Margarine	8	8	0	0	0·0
Treacle	1	1	0	0	0·0
Vinegar	8	7	1	0	12·5
Cocoa	8	7	1	0	12·5
Coffee	8	8	0	0	0·0
Rice	8	8	0	0	0·0
Baking Powder	8	7	1	0	12·5
Totals	159	145	10	4	8·8

Nine varieties of food have come under investigation, but no drugs.

Milk shows a higher figure of adulteration than of recent years. It offers such a tempting and easy task to the adulterator that I expect he will always be with us. One shudders to think what sort of milk we should get if there were no analyst at all. One of the acts of the Ministry of Health will probably be to institute a limiting standard of dirt in milk, for it is as important as quality ; if we are to have a "better and brighter England" it will impose irksome obligations of efficiency, as well as great privileges. The cows of Halifax district produce milk equal to the average of the whole of England. The pasture grass is quite good, indeed better than much I have seen, and in the summer the animals do not suffer so much from heat as in southern counties.

The butter samples were all genuine. Perhaps the very restricted allowance for each person, and the ready sale of margarine and its high price, had something to do with this.

The margarine samples, few in number, were also genuine. Of course, the manufacture of this commodity was so strictly controlled, and watched by Government, that no other result could be expected.

Vinegar still yields its quota of artificial samples. This is a case for a new standard. The housewife should see to it she gets MALT Vinegar, or at any rate a brewed vinegar of some kind, and not a chemically prepared acetic acid, coloured artificially.

The Cocoa samples also supplied an instance of adulteration, the one in question containing 30% of the husk of the bean. Here again is required a legal standard as a ground for prosecution, and here, too, very properly arises the question whether the new Health Ministry should not bring within the scope of the Public Analyst's duty, investigation and report upon advertised claims of food values for sundry comestibles such as pudding powders, egg powders and substitutes, infants' foods and cocoas. These latter are the subject of particularly brazen claims in advertisements from some quarters. It should be realized that a full tin of cocoa, sufficient to make many cups of that beverage, has only food value equivalent to one good slice of bread and butter, and the food value of an individual cup of cocoa depends almost entirely upon the milk and sugar which is added to it, just as in the case of tea and coffee. Moreover, food value does not depend solely on calories.

The coffee samples were all genuine, which is rather good considering that on the Continent they have had to be content with very weird substitutes during the war.

One of the Baking Powders was very bad, yielding as it did only 1.2% of available carbonic acid gas. The others, however, were much better than in the previous year, and good has evidently been done by attention having been directed to them.

The Rice samples were not too heavily loaded with coats of mineral polish.

Fines of £30 with £8 6s. costs were imposed upon offenders during the year.

RAG FLOCK ACT, 1911.

No samples were taken under this Act during 1918.

THE FERTILIZERS & FEEDING STUFFS ACT, 1906.

Only two samples of fertilisers were taken during the year under the powers of this excellent Act, and they were both within the limits claimed by the makers and sellers. Supplies of material have been very short during the war, but this is now being altered, and users should study in the years to come the relative values of fertilisers and foods. There is a great deal of difference for instance between the various well-known proprietary fertilisers and plant foods, although the prices may be the same or even in inverse ratio to their actual value.

After-care of the Sanatorium Patient with Special Reference to Housing.

By JAS. T. NEECH, M.D., D.P.H.,
MEDICAL OFFICER OF HEALTH, HALIFAX.

It was with a certain amount of diffidence and no little misgiving on my part that I accepted the invitation to open this important discussion to-day.

I must say in the outset that I have no great liking for the term "After Care." It savours too much of a belated policy, and resembles too closely the act of locking the stable door after the steed has been stolen. Yet in the present state of our knowledge regarding the many aspects of Tuberculosis, regarding many of the special circumstances and conditions which operate and co-operate in its causation and spread of which we have imperfect information, and upon which experts differ widely in their opinions, and in view of the fact that there is no reliable and effectual specific treatment, it would appear that the after care of the consumptive is absolutely necessary, and must occupy an important and paramount position in our campaign against the ravages of the disease.

While this is so, why not also establish Pre-Care Committees, and endeavour to help to secure suitable houses and healthy surroundings, healthy workshops, suitable work and the like, for those who are strongly predisposed to the disease, and in that way endeavour to

prevent its development? This would surely be as useful work as that of the after-care of patients, whose ultimate cure in the majority of cases is impossible of attainment. Possibly after-care will gradually assume this role because it is pretty apparent that we shall never stamp out this disease by attempting to cure it.

Prevention must therefore be our aim and object, and in this, as in the production of other infectious diseases, we must bear in mind there are two essential factors—the seed and the soil.

First with regard to the seed—the tubercle bacillus. It is abundantly evident that without the presence of this specific bacillus, however susceptible the soil may be, Tuberculosis cannot result, but in chronic Phthisis may we not be concentrating our attention too much on this organism, and to the exclusion of the effect produced and the part played by other bacteria associated and allied therewith in the gradual extension and progress of this disease.

I have frequently seen—and no doubt other medical officers will have had the same experience in the course of meat inspection—large masses of tuberculous infection in the Pleural and other serous cavities of cattle, and yet the animals have been in prime condition. No evidence of the existence of the disease had been detected by experienced judges, and the slaughter of the animal only, revealed its presence.

Again, in far less extensive lesions in the lungs, which have broken down with secondary infection, I have seen the same emaciation, general wasting and other symptoms and conditions which are associated with the average case of chronic Pulmonary Phthisis in man.

May it not be true that a mixed infection plays a more or less important part in many of the infectious diseases. Take Diphtheria for example. From clinical experience I feel sure that certain mixed infections add to and intensify the toxicity of the Diphtheritic Toxine. This is borne out to a certain extent by the fact that

Antitoxine, which acts with such marked benefit in a large proportion of cases sometimes has little or no effect in such circumstances.

Again, in Typhoid Fever, while the typhoid bacillus originates the lesion, other organisms undoubtedly become implanted thereon, and where this does not occur the disease is probably cut short or aborts. It has been shown by certain observers that the tubercle bacillus will grow much more luxuriantly on nutrient media in the presence of certain toxins of some of the bacteria isolated from mixed infections, and does not. Phthisis sometimes follows upon broncho pneumonia after measles and whooping cough, and other low forms of catarrhal pneumonia?

Do not the infections in these cases prepare the soil for the reception of the tubercle bacillus? Again, why does the tubercle bacillus remain more or less dormant and inactive within the body at times for long periods, and the specific bacillus of other diseases, also in apparently healthy people? May not these circumstances to some extent be due during the time being, to absence of the necessary symbiotic influence?

The tubercle bacillus is widespread in the community, and post-mortem examinations of persons who die from other causes exhibit cured lesions of tubercular disease. What is nature's cure in these cases? The tubercular lesion is accompanied by and surrounded with an inflammatory process which leads to fibrosis, and the tubercle becomes encapsuled. Caseation sets in and the softened contents either become evacuated by expectoration or calcified.

In progressive cases this sequence of events does not occur, but the accompanying inflammatory process breaks down and the disease spreads.

Why does the inflammation in one case lead to organisation, and in the other to degeneration? May this not be due to superadded organisms or mixed infections?

Whatever immunity may be it seems to me that it differs in its nature and essence in different diseases, because in certain cases

one attack confers almost absolute immunity against further attacks of the same disease; Smallpox for example; while in some others it would appear that one attack predisposes to further attacks of a similar nature.

May not immunity in Phthisis consist to a great extent of immunity against the various bacteria, usually associated with mixed infections.

The tubercular process is frequently a very chronic one having perhaps often lasted years, before a patient is brought under treatment at the Sanatorium, yet a certain proportion of patients after admission show early signs of improvement, and in my experience it is these cases which usually obtain the greatest benefit from Sanatorium treatment. Now it seems to me unreasonable to suppose that a few days or even a few weeks residence in a Sanatorium can produce any marked modification in the tubercular process "*per se.*" A chronic disease unless it is maintained and intensified by a constantly recurring cause, which is more or less removable would not I think be so modified, and if the purely tubercular process were so affected it seems to be that Sanatorium treatment would be more successful than it has so far proved to be. I venture to suggest, therefore, that Sanatorium treatment modifies the effects of the mixed or secondary infections rather than the tubercular process itself.

The inhabitants of great industrial centres live so to speak upon paved surfaces. This is necessary to prevent soil pollution and facilitate cleansing, but such surfaces are readily dried, any organic matter or any infective material cast thereon is readily converted into dust which is distributed by air currents. Street surfaces are polluted in many ways and indiscriminate spitting takes place. Volumes of putrefactive gases emanate from street sewers. The contents of those filthy little cesspools we call gulleys undergo putrefactive changes, and in emptying the sludge is manipulated in the street. Dust gains access to and collects in houses. It is a danger even in clean houses, but considerably more so in dirty dwellings.

In centres of dense populations there is therefore not only a concentration of tubercular infection, but also a concentration of all sorts of infections to which the human being is susceptible.

There is every facility for any lesion or any alcerative process in the lungs to be constantly manured afresh, and re-infected with new strains of bacteria. The consumptive when sent to a Sanatorium is removed out of these conditions, and is transferred to a more pure atmosphere, while there he lives and sleeps in the open air, and not in the dust and germ laden atmosphere of his home surroundings.

He frequently improves in a rapid manner and to a marked degree, but is not cured. He returns home and becomes re-infected and his improved general health soon begins to suffer also, from the impurity of his environment. It is abundantly evident therefore that furthur provision is needed, and that is the problem which after-care is called upon to solve. It is a problem bristling with difficulties of which the economic aspect is not the least formidable. I am afraid also that public opinion is not yet sufficiently advanced, and the unfortunate sufferers from this fell disease do not sufficiently realize their responsibilities to humanity to enable prospective schemes of after-care to secure the attainment of their possible, and utmost success.

But cognizance must be taken not only of the seed or infective agent, but also of the soil if our efforts are to succeed. Though there may be little or no evidence that this disease is hereditary, yet there is ample proof that there is transmitted a condition of constitution which predisposes thereto.

Although this is so, marriage takes place among the pthisical with indiscrimination. Attachments are even formed at the Sanatorium which often end in matrimony. These marriages are frequently very fruitful, and so there is constantly being produced an unhealthy stock, predisposed to the disease, a soil responsive to the reception of the seed.

I am afraid public opinion is not yet ripe for the requirement of certificates of health before marriage, and in the absence thereof

is this not an aspect of the question which after-care committees could well take up, and urge upon these people the necessity of abstaining from entering into matrimony. This should be done persistently and constantly. Both in season and out of season, no opportunity should be neglected. The man should be reminded that he is more or less crippled for life, that he is handicapped in the struggle for existence and is therefore not fit to undertake the responsibilities of a family. The woman should be warned of the probable danger to herself of becoming a mother, and upon both, the seriousness of the proposed step should be impressed. How that by such acts they assuredly bring sickness, suffering, misery, and premature death upon unborn generations.

It would appear that tuberculosis is a concomitant of civilization, and certain conditions of domestication. The guinea pig is very susceptible to tuberculosis, but in its native state it does not suffer from the disease, and this is true I believe of many other animals.

The sheep is susceptible to the disease, but does not suffer therefrom. It lives continually in the open air.

The goat in this country is remarkably free from tuberculosis, but on the continent where it is housed and stall fed it falls a ready victim thereto. Cattle, and more especially cows, that are housed during a considerable portion of the year are markedly affected with tuberculosis. Cows that live continually in the open air, or are only housed in open sheds are much less affected and there is no doubt that with care and proper treatment the disease could be completely eradicated from the herds kept under such conditions. It would appear from my investigations that the horse forms an exception to the above. The horse is susceptible to tuberculosis, yet in comparison with the cow it rarely suffers from the disease, although it is housed for the greater part of the year under conditions usually as bad, if not even worse than the cow. It would be interesting to know why this apparent immunity exists among horses. It might serve to throw some light on the prevention and treatment of the disease.

A consideration of the foregoing facts point definitely at any rate to one conclusion the important part which housing conditions play in the development and spread this disease.

The house affords a receptacle for the collection and retention of the infective agent or agents. It often means defective ventilation and overheated rooms which serve to depress vitality. Where houses are crowded together in the great industrial areas there is a concentration of infection, and a polluted environment, with the result that the disease there is more prevalent and more destructive of life.

It is becoming increasingly evident to me, therefore, that the ultimate aim of after-care must be the removal of all known consumptives from populous centres into suitable country districts. I do not think public opinion is yet ripe for compulsion, but to secure this end a compulsory measure in some form will doubtless be necessary to place towns, in military parlance, "out of bounds to the consumptive."

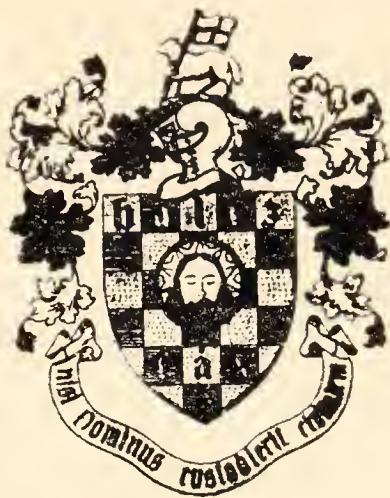
The suggested Colony Scheme, with suitable factories, workshops, schools, etc., if properly organised, will undoubtedly serve a most useful purpose in our campaign. But colonies alone will not suffice. Consumptive patients, as we all know, are among the most difficult to manage and many would object to go into colonies.

If open-air treatment is to be more effectual in the future than it has been in the past, in my opinion that method must be applied as a preventive agent, and those persons who are predisposed to the disease—the families of the consumptives—must be given open-air treatment before and not after they have developed the disease. It will not be sufficient therefore to transfer the consumptive only from congested areas: those who are markedly susceptible to the disease must also be removed into open-air surroundings.

No doubt this will be carried out in the proposed colonies, but I recommended my committee some two years ago to erect a number of bungalows with open-air bedrooms for the occupation of consumptive families with that object in view.

I commend this scheme to the consideration of this conference because I believe individual houses on this plan will command the approval of many who may object to the colony.

If housing conditions play the important part in the maintenance and spread of the disease indicated, and this opinion is generally accepted, the larger the number of the predisposed to Tuberculosis we can get to lead the simple open-air life, the greater will our success be in combatting the disease. Country air contains ozone, which is absent from the atmosphere of towns. Ozone does not exist in air by chance : it is there for a purpose. It stimulates metabolism and promotes healthy vigour, consequently, the larger the proportion of the general population, whether predisposed to Tuberculosis or not, that can be prevailed upon to live in the open-air, the higher will be the general standard of health in the community at large.



COUNTY BOROUGH OF HALIFAX
HEALTH DEPARTMENT.

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